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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,873	07/03/2006	Rachel Butler	T3140(C)	9573
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EXAMINER NEGRELLO, KARA B				
ART UNIT		PAPER NUMBER		
1766				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentgroupus@unilever.com

Office Action Summary

Application No.

10/566,873

Applicant(s)

BUTLER ET AL.

Examiner

KARA NEGRELLI

Art Unit

1766

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 7, 8, 11, 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-10, 12-20, and 23-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 18, 2010 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. Claims 7-8, 11, and 21-22 have been cancelled.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-6, 9-10, 12-20, and 23-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
5. Claims 1 and 23 have been amended to recite the limitation "...able to substantially fully dissolve in water at 20°C in less than 107 seconds." This limitation is

not found anywhere in the original specification or claims, and thus is not supported by the disclosure of the application. MPEP 2163.06 states "Lack of written description is an issue that generally arises with respect to the subject matter of a claim. If an applicant amends or attempts to amend the abstract, specification or drawings of an application, an issue of new matter will arise if the content of the amendment is not described in the application as filed." The property of being "...able to substantially fully dissolve in water at 20°C in less than 107 seconds" was not described anywhere in the application as filed.

6. Furthermore, MPEP 2016 states that "For the written description requirement, an applicant's specification must reasonably convey to those skilled in the art that the applicant was in possession of the claimed invention as of the date of invention. *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 1566-67, 43 USPQ2d 1398, 1404-05 (Fed. Cir. 1997); *Hyatt v. Boone*, 146 F.3d 1348, 1354, 47 USPQ2d 1128, 1132 (Fed. Cir. 1998). The added limitation is not described in the originally filed application, and thus the applicants were not in possession of the amendment to the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-6, 9-10, 13-15, 17-20, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Ko et al. (US 2003/0134918).
9. Ko et al. teach compositions comprising replacing the oil in an oil-in-water emulsion with supercritical fluids, such as CO₂, that are non-toxic, environmentally friendly, more soluble, and cost effective (paragraph [0007]). After polymerization, the CO₂ is easily extracted from the polymer as a gas (paragraph [0008]). The supercritical CO₂ causes swelling of the polymeric matrix, allowing diffusion of surface active agents or other active components into the matrix in the swollen state, wherein upon depressurization, the matrix deswells and entraps the active components to modify properties of the foam (paragraph [0008]). By controlling the nature of the emulsion, and the polymerization process, nanopores can be created (paragraph [0008]). Ko et al. further teach that by depressurization, the CO₂ is vented away, and all or a portion of the oil phase is removed (paragraph [0044]).
10. Solvents, particularly those used in the liquid form, can be removed by freeze-drying (meaning the aqueous phase would at this point be at least partially frozen) (paragraph [0032]).
11. Operations such as vacuum removal, removal driven by air pressure, pressing the foam, or other methods can be used to remove the oil phase, the supercritical fluid, remaining water, emulsifier, initiators, or any other unpolymerized material from the foam (i.e. there would be no solvent residue remaining in the material) (paragraph [0044]).

12. Ko et al. teach that crosslinking materials are optional components in the materials of the invention (paragraph [0022]). Given this teaching, one of ordinary skill in the art would at once envisage porous materials which contain crosslinking and porous materials which do not contain crosslinking. If one of ordinary skill in the art is able to "at once envisage" the specific compound within the generic chemical formula, the compound is anticipated. See MPEP 2313.02.

13. Ko et al. further teach the use of surfactants such as polyoxyethylene sorbitan monolaurate and polyoxyethylene sorbitan monopalmitate (Tween 40) (paragraph [0021]). Further additives can also be used in the composition, such as solid metal nanoparticles (pertaining to instant claims 2-6 and 19-20), such as hydrophilic titanium oxide, silica, and the like (paragraph [0048]), as well as copper hydroxide or zinc hydroxide (organic reagents) as antimicrobial and/or odor control agents (paragraph [0065]).

14. Examples of the monomers to be polymerized for the composition of Ko et al. include polycarboxylic acid such as acrylic acid, vinyl lactams, aromatic vinyl sulfonic acids, carboxylic acid salt-containing monomers, N-hydroxyalkyl acrylamides (polyacrylamides, which the instant application recognizes is a water soluble matrix building material), methacrylic sulfonic acids, or acrylic sulfonic acids, (paragraph [0053]). The monomers are to be dispersed within the water phase of the invention (paragraph [0053]). The composition of may further comprise cellulosic fibers (water-soluble additive) (paragraph [0049]). Because Ko et al. teach that these water soluble polymers may be dispersed in the aqueous phase of the emulsion, and because Ko et

al. teach that carbon dioxide may completely substituted for the oil phase in a water-in-oil HIPE emulsion, and because crosslinking agents *may* be added to the composition (making them optional), the compositions of Ko et al. may be water-soluble porous materials. Ko et al. also teach that the porous materials may be molded into any desired shape (paragraph [0068]) (which would include porous beads or particles or a monolithic block, as described in claims 17-18).

15. As to instant claims 17-18, case law holds that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). It is the examiner's position that the porous products of Ko et al. are capable of being formed into "any desired shape," and are not structurally different than the instant invention. "Any desired shape" would include a monolithic block or particles or beads.

16. Ko et al. further teach that the polymeric foam is used to produce absorbent articles (paragraph [0063]), including bandages or wound dressings (wound healing matrices) (paragraph [0010]), which are disclosed uses for the porous materials of the instant invention. See paragraph [0026] of the Pre-Grant Publication of the instant application (US 2007/0135528).

17. Because the compositions of Ko et al. may comprise the same materials and are produced using the same process as described in the instant claims, the compositions

of Ko et al. will inherently have the same properties as the polymeric materials of the instant invention, including the solubility described in instant claims 1, 23, and 26. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 12, 16, 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ko et al. (US 2003/0134918) and further in view of Butler et al. Advanced Materials, "Emulsion Templating Using High Internal Phase Supercritical Fluid Emulsions."

20. Ko et al. teach the materials as described in the rejection above, the rejection of which is incorporated herein. Ko et al. do not expressly teach reducing the temperature of the emulsion to a range of from -5°C to -30°C. However, since Ko et al. teach freeze-drying the composition to remove solvent in a process which involves first freezing the substance and then subliming it (paragraph [0032]), one of ordinary skill in the art would recognize that freezing includes exposing the substance to temperatures which fall within the instantly claimed range.

21. The foams produced according to the invention of Ko et al. have pore volumes of from 6 cc/g to 200 cc/g. The bulk density would therefore be 1/200 g/cc to 1/6 g/cc, or from 0.005 to 0.16 g/cc (paragraph [0028]). The polymeric foam further has an average cell size of 50 microns or less (paragraph [0038]). These ranges overlap the values given in instant claim 23.

22. It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See *In re Harris*, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir. 2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

23. Ko et al. do not expressly teach that method for producing the porous materials comprises from 5-20% w/v of matrix building material, from 5-20% w/v surfactant in respect of water, and 65-95% CO₂.

24. However, Butler et al. (2001) (*Advanced Materials* 2001, 13, 1459-1463) teaches CO₂-in-water emulsions comprising 70% to 80% CO₂, 10% w/v poly (vinyl alcohol) relative to water, and 1 to 10% surfactant w/v based on water (page 1460, column 2, paragraph 2, lines 1-4 and page 1461, paragraph 2, lines 5-8). It would have been obvious for one of ordinary skill in the art to use the concentrations of each component as specified by Butler et al. (*Advanced Materials* 2001, 13, 1459-1463) in the invention of Ko et al. because using the concentrations results in a system in which free-radical

polymerization occurs before the emulsion becomes destabilized (Butler et al., *Advanced Materials* 2001, 13, page 1460, column 2, paragraph 2, lines 9-12). Addition of polyvinyl alcohol further counteracts destabilization when added to the aqueous phase of the emulsion before polymerization, resulting in an emulsion sufficiently stable for producing open-cell porous materials (Butler et al., *Advanced Materials* 2001, 13, page 1461, column 1, paragraph 2, lines 5-12). While Butler et al. teach that crosslinked acrylamide based polymers may be used to produce the porous materials, Butler et al. further teach that the invention may be applied to a much wider range of materials (page 1460, paragraph 3), such as 2-hydroxyethyl acrylate. The substitution of acrylamide with 2-hydroxyethyl acrylate led to porous, open-cell materials suggesting that the technique described by Butler may be applied to a wide range of hydrophilic and hydrogel materials. Butler also teaches that water-soluble materials are desirably used in the formation of the materials of the invention, see page 1460, third full paragraph.

25. Both Butler et al. and Ko et al. are from the same field of endeavor: porous materials such as foams produce using CO₂ -in- water- emulsions. (See paragraph [00008] in Ko et al. and the first full paragraph of Butler et al., *Advanced Materials* 2001, 13, page 1460). It would have been obvious for one of ordinary skill in the art to use the materials of Butler et al. in the method of Ko et al. because the materials of Butler et al. lend to defined porous structures without the use of any volatile organic solvents. Additionally, paragraph [0009] of Ko et al. teaches that the "Emulsion Templating Using Supercritical Fluid Emulsions" article by Butler et al. is incorporated by reference, as the

technologies of Butler et al. can be adapted to improved HIPE polymerization processes used in the production of foams for absorbent articles, particularly using supercritical carbon dioxide to replace the oil phase in the HIPE foam-production processes to produce foams having higher capillary tension or other improved physical and interfacial properties relative to past HIPE foams.

26. It is noted that while 24-25 claim a water soluble porous material, all elected claims are recited in the product-by-process format by use of the language, "A water soluble porous material being produced in the form of..." Case law holds that:

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

27. To the extent that the process limitations in a product-by-process claim do not carry weight absent a showing of criticality, the reference discloses the claimed product in the sense that the prior art product structure is seen to be no different from that indicated by the claims.

28. Instant claim 30 recites future intended uses of the porous materials of instant claim 26. Case law holds that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Response to Arguments

29. Applicant's arguments with respect to claims 1-6, 8-10, 12-21, and 23-30 have been considered but are moot in view of the new ground(s) of rejection. However, the arguments are addressed below.

30. First, it is noted that the addition of the limitation "...able to substantially fully dissolve in water at 20°C in less than 107 seconds" is not supported by the instant disclosure. The declaration filed on November 18, 2010 is not part of the originally filed application and thus, cannot provide support for the amendment.

31. With regards to applicants' argument that one of ordinary skill in the art would have chosen a crosslinking agent in the invention of Ko et al., as discussed in the rejection above, crosslinking materials are not a required component of the invention of Ko et al. No where in the disclosure of Ko et al. is there a teaching that crosslinking materials must be added. Ko et al. teach that crosslinking materials are optional components in the materials of the invention (paragraph [0022]). Given this teaching, one of ordinary skill in the art would at once envisage porous materials which contain crosslinking and porous materials which do not contain crosslinking. If one of ordinary skill in the art is able to "at once envisage" the specific compound within the generic chemical formula, the compound is anticipated. See MPEP 2313.02.

32. With regards to the newly added limitation of being "...able to dissolve in water at 20°C in less than 107 seconds," it is again noted that this limitation constitutes new matter. Furthermore, because the compositions of Ko et al. may comprise the same materials (a polymer matrix in which the polymer comprises N-hydroxyalkyl acrylamides

(which the instant application recognizes is a water soluble matrix building material), a water-in-oil emulsion in which the oil is completely replaced with supercritical CO₂, and identical surfactants and are produced using the same process as described in the instant claims (providing the C/W emulsion described above, freeze-drying, venting away the CO₂, and removing the solvent completely from the matrix), the compositions of Ko et al. will inherently have the same properties as the polymeric materials of the instant invention, including the solubility described in instant claims 1, 23, and 26. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

33. The provided declaration does not compare the invention of the closest prior art, i.e. Ko et al., with the instant invention and thus, does not provide evidence that the invention of Ko et al. will not have the required rate of dissolution (able to substantially fully dissolve in water at 20°C in less than 107 seconds). Regardless, the provided declaration is not support for the newly added limitation to the claims. The declaration is not part of the originally filed application.

34. MPEP 2163.07 does not apply to the provided declaration because in order for the property to be inherently contained within the invention, the claimed property must be present each and every time, in each and every circumstance, for the porous materials produced according to the method of claim 1. Thus, the declaration is not sufficient to show that the newly added property limitation is supported by the instant specification. The declaration provides but two examples and is not sufficient to show that every porous material made according to the process of instant claim 1 will have

the required dissolution rate (being able to substantially fully dissolve in water at 20°C in less than 107 seconds).

35. For the reasons provided above, applicants' arguments filed November 18, 2010 are not persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARA NEGRELLI whose telephone number is (571)270-7338. The examiner can normally be reached on Monday through Thursday 9:30 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Art Unit: 1766

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/KARA NEGRELLI/

Examiner, Art Unit 1766

/RANDY GULAKOWSKI/

Supervisory Patent Examiner, Art Unit 1766